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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,890	09/09/2003	J. Randall Hall	H&S-L	2638

7590 07/14/2005

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EXAMINER
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ADDISU, SARA

ART UNIT	PAPER NUMBER
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3722

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/657,890	<b>Applicant(s)</b> HALL, J. RANDALL	
	<b>Examiner</b> Sara Addisu	<b>Art Unit</b> 3722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9/9/2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/9/03, 3/11/05 &amp; 3/14/05</u>   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities:

Page 14, line 22, the coaxial cylindrical bore is referred to as "244". Drawings show it as "240".

Page 8, line 11, gives description of Figure 6. Figure 6 does not exist. Drawing show only figures 6A and 6B.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 18 recites the limitation "first distance and second distance". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hillestad (U.S. Patent No. 5,542,177).

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Hillestad teaches a method for preparing a tube end for a welding operation, whereby a first rotary milling head (20) having cutting blade (38) for removing a predetermined amount of radial thickness (i.e. inner radius of annular cutting sweep being equal to outer radius of tube and outer radius of cutting sweep being the sum of the radius of the tube plus 50-100% of the width of the membrane material between adjacent tubes) from the outer diameter of tubes (see figures 3-5 and Col. 5, lines 17-33). Hillestad also teaches milling head (20) removing the radial thickness to a predetermined depth of .5 inch –1 inch from the cut edge of the tube wall (Col. 8, lines 52-53) (Note. This range meets the claimed range of .25 inch to "about" 1.5 inches in Claim 9). Furthermore, Hillestad teaches the use of rotary milling head (220) having blades (262) to bevel the end of the tube as well as blades (262) to cut the membrane (see figures 9 & 10 and Col. 6, lines 38-42 & Col. 7, lines 4 & 43).

Regarding claims 4-7 and 10, Hillestad teaches the outer radius of the cutting sweep of cutting blade (38) being equal to the sum of the radius of the tube wall plus 50-100% of the width of membrane material between adjacent tubes (Col. 5, lines 28-34). Hillestad also teaches tube radial thickness of about 0.5 inch and width of membrane of 0.25-0.75 inch (Col. 1, lines 30-34).

50% of 0.25 inch = .125 inch and 100% of 0.25 inch = 0.25

50% of 0.75 inch = .375 inch and 100% of 0.75 inch = 0.75

therefore, 50-100% of the width of membrane material ranges from 0 to .125 inch on the lower scale, and 0 - 0.75 inch on the upper scale.

Regarding claims 4, 5 & 10, 2%-25 % of tube radial thickness (i.e. up to about 0.5 inch) is equal to 0.01 – 0.125 inch, which falls in the lower range mentioned above.

Regarding claims 6 & 7, 10% of tube radial thickness (i.e. up to about 0.5 inch) is equal to 0.05 inch, which falls in the lower range mentioned above.

Regarding claim 3, page 4, lines 1-6 of Instant Application cites, "Heretofore, membrane removal utilizing rotary milling tools on an existing tube of a tube wall has been limited to a cutting sweep equal to the outer radius of a tube. Prior art membrane removal heads are not capable of performing tube cleanup and/or weld overlay removal due to milling head blade configuration or design". Since Hillestad teaches cutting sweep that has an outer radius that is greater than the outer radius of a tube, Hillestad's milling head is capable of removing any weld overlay from the surface of the tube.

Regarding claim 8, Hillestad discloses the claimed invention except the beveling step (blade 262) and membrane removal steps (blade 238) are performed by the same milling head (220: Figures 9 & 10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform the two different steps/operations by utilizing separate milling heads, since it has been held that construction of a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177,179).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 12, 14-18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hillestad (U.S. Patent No. 5,542,177) in view of Carlson et al. (U.S. Patent No. 5,211,212).

Hillestad teaches a milling head having cutting blades with a bore for receiving a securing element (bolt) as set forth in the above rejection. Regarding claim 14, 2% - about 15% of tube radial thickness (i.e. up to about 0.5 inch) is equal to 0.01 - 0.075 inch, which falls in the lower range mentioned above. Regarding claim 14-17, 2% - about 10% of tube radial thickness (i.e. up to about 0.5 inch) is equal to 0.01 - 0.05 inch, which falls in the lower range mentioned above. Regarding claims 4-7 and 10, Hillestad teaches the outer radius of the cutting sweep of cutting blade (38) being equal to the sum of the radius of the tube wall plus 50-100% of the width of membrane material between adjacent tubes (Col. 5, lines 28-34). Hillestad also teaches tube radial thickness of about 0.5 inch and width of membrane of 0.25-0.75 inch (Col. 1, lines 30-34).

50% of 0.25 inch = .125 inch and 100% of 0.25 inch = 0.25

50% of 0.75 inch = .375 inch and 100% of 0.75 inch = 0.75

therefore, 50-100% of the width of membrane material ranges from 0 to .125 inch on the lower scale, and 0 - 0.75 inch on the upper scale.

However, Hillestad is silent about how the head of the bolt is received within the bore of the blade.

Carlson et al. cutting tooth (22) having a countersink (66) around it's bore for receiving the head of the mounting bolt (44) such that the head (68) of the mounting bolt (44) is flush with the front face (58) of the cutting tooth (22) (see figure 3 and Col. 4, lines 16-20).

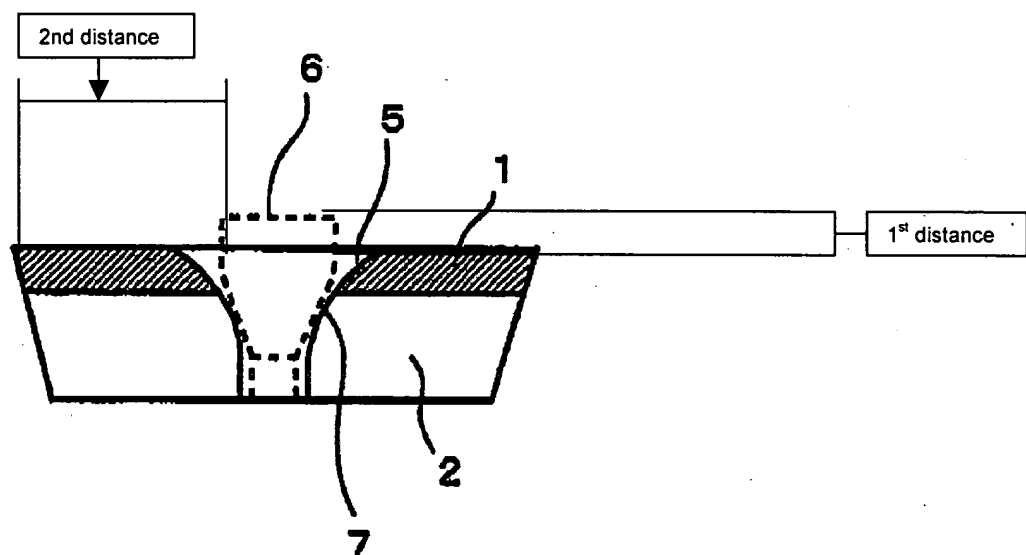
Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Hillestad's invention such that the head of the bolt received within the bore of the blade is flush to the blade's face, as taught by Carlson et al. for the purpose of reducing the wear to the bolt head ('212, Col. 4, lines 20-21).

Claims 11, 13, 15, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hillestad (U.S. Patent No. 5,542,177) in view of Ueda et al. (U.S. Pub. No. 2004/0234349).

Hillestad teaches a milling head having cutting blades with a bore for receiving a securing element (bolt) as set forth in the above rejection. Regarding claim 15, 2% - about 15% of tube radial thickness (i.e. up to about 0.5 inch) is equal to 0.01 – 0.075 inch, which falls in the lower range mentioned above. Regarding claim 17, 2% - about 10% of tube radial thickness (i.e. up to about 0.5 inch) is equal to 0.01 – 0.05 inch, which falls in the lower range mentioned above.

However, Hillestad is silent about how the head of the bolt is received within the bore of the blade.

Ueda et al. teaches a cutting insert having a countersink around it's bore for receiving a portion of the bead of the bolt (6) while having a top portion that extends out from the insert face surface (see figure 2B). Ueda et al. also teaches first distance which is less than second distance (and is less than 90% and 95% of the second distance) (see diagram below).



Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Hillestad's invention such that the head of the bolt received within the bore of the blade extends out from the blade's face, as taught by Ueda et al. since it's well known in the art to select a clamping-hole configuration that is in conformance with the strength and mounting precision rendered necessary by the tool (2004/0234349, page 2, paragraph 18, lines 13-15).



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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sara Addisu at (571) 272-6082. The examiner can normally be reached on 8:30 am - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on (571) 272-4502. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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